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NO FOREIGN DISSEM

COUNTRY USSR

SUBJECT Detailed Analysis of Soviet Crude Oil

REPORT

DATE DISTR. 4 June 1963

NO. PAGES 1

REFERENCES RD

50X1

DATE OF INFO.

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De-salted crude oil from Soviet Russia (1962)

(crude oil originating from the Wolga-Ural area)

Spec. gravity	0.8685 /15°C
"	0.8651 /20°C
Viscosity at 20°C	= 16.9 cS ~ 2.52°E
at 30°C	= 11.1 cS ~ 1.93°E
at 50°C	= 6.19 cS ~ 1.50°E
Pour point	−39°C
Paraffin content	10.6 % wt (congelation at +54°C)
Flash point (A.P.)	+ 6°C
Reid vapor pressure	0.36 Kp/cm²
Neutralisation value	0.12 mg KOH/g
Sulfur (total)	1.714 % wt.
Salt	67.6 mg NaCl/l
Vanadium	45 p.p.m
Nickel	71 p.p.m
Conradson Carbon	5.17 % wt.
Ash	0.003 % wt
Hardasphalt	0.99 % wt
Water	0.1 % wt.
Solid matters	0.002 % wt.

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Boiling range :

I.B.P.	57°C
— 70°C	2.5 % vol.
— 80°C	4.0 % "
— 90°C	5.0 % "
— 100°C	6.0 % Vol
— 110°C	8.0 % "
— 120°C	10.0 % "
— 130°C	13.0 % "
— 140°C	14.0 % "
— 150°C	15.5 % Vol
— 160°C	17.5 % "
— 170°C	19.0 % "
— 180°C	21.0 % "
— 190°C	23.0 % "
— 200°C	25.5 % "
— 210°C	26.5 % "
— 220°C	28.0 % "
— 230°C	30.5 % "
— 240°C	32.0 % "
— 250°C	34.0 % "
— 260°C	36.0 % "
— 270°C	38.0 % "
— 280°C	40.0 % "
— 290°C	42.0 % "
— 300°C	44.0 % Vol
— 310°C	46.0 % "
— 320°C	50.5 % "
— 330°C	52.0 % Vol

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Analysis of distillates

	Dim.	Light Gasoline	Total Gasoline	Heavy Gasoline	Kerosene	Gasoil	Residue (atm.)
Fractions acc'dg to T.B. curve	°C	58-90	58-180	90-180	180-230	230-374.5	> 374.5
	% vol	0.11-8.75	0.11-24.91	8.75-24.91	24.91-33.34	33.34-60.19	60.19-100
	% wt.	0.27-6.83	0.27-20.85	6.83-20.85	20.85-28.68	28.68-55.29	55.29-100
Sp. grav. at 20°C		0.6544	0.7185	0.7494	0.8027	0.8574	0.9722
Total Sulfur	% wt	0.007	-	0.040	0.286	1.603	2.947
RSH-Sulfur	-"-	0.0009	-	0.00195	0.00207	0.00207	—
Neutr. value	mg KOH/g	0.057	0.10	0.09	0.034	0.114	0.134
Avg. Mol. weight		65	104	128	153	284	703
Aniline point	°C	—	58.2	56.8	58.8	68.6	
Reid vapor press.	kg/cm²	1.38	0.51	0.14	—	—	—
Cold Test	°C				-52		
Pour point	°C						+32
Viscosity	cSt Centi-stokes				2.71/0°C 1.83/20°C 1.16/50°C	— 7.80/20°C 3.57/50°C 2.43/70°C	142.3/70°C 65.5/100°C
Smoke Point	m/m				21		
Flash Point	°C				70	113	255

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Distillation

	Light Gasoline	Total Gasoline	Heavy Gasoline	Kerosene	Gasoil	Residue
I.B.P. -°C-	25	39	57	187	242	—
— 10% Vol	36°C	64°C	110°C	194°C	264°C	
— 20% Vol	43	82	119	196	271	
— 30% Vol	50	95	125	198	279	
— 40% Vol	56	108	130	200	286	
— 50% Vol.	62	119	135	202	297	
— 60% Vol.	69	130	142	204	306	
— 70% Vol	75	142	148	208	317	
— 80% Vol	84	157	155	210	331	
— 90% Vol.	93	162	162	216	349	
— 95% Vol	100	171	168	220	352	
F.B.P °C	100	177	180	226	360	
Loss - % Vol-	4	1	0	0	0	
Res. —"—	1	1	0	1	1	
FIA Structural analysis:						
Aromatic	1		7	20		
Paraffines	} 99		67	} 80		
Naphthenes			26			
-% Vol-						

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Distillation of light naphthenic carbons in narrow cuts.

50X1

Boiling range acc'dg to T.B. curve	°C		20-48	48-70	70-83	83-96	96-109
Fractions of crude oil	% Vol.	0.00 - 1.12	1.12 - 3.27	3.27 - 5.45	5.45 - 7.63	7.63 - 9.87	9.87 - 11.99
	% Wt.	0.00 - 0.77	0.77 - 2.33	2.33 - 3.97	3.97 - 5.70	5.70 - 7.48	7.48 - 9.30
Middle of fract.	% Wt.	0.39	1.55	3.15	4.84	6.59	8.39
Yield (on crude)	% Vol	1.12	2.15	2.18	2.18	2.18	2.18
	% Wt.	0.77	1.56	1.64	1.73	1.78	1.82
Ethane	% Wt.	0.10	traces	0.001	0.001	0.002	traces
Propane	-"-	11.37	0.87	0.57	0.17	0.04	0.01
i- Butane	-"-	9.16	3.07	1.13	0.35	0.08	0.01
n- Butane	-"-	33.12	18.13	6.62	2.48	0.60	0.09
i- Pentane	-"-	17.88	25.04	10.55	5.48	1.92	0.54
n- Pentane	-"-	18.45	34.84	16.35	9.29	3.74	1.03
Hexane + higher	-"-	9.92	18.11	64.68	82.23	93.02	98.32

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